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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,846	03/19/2004	Yi Hua Ma	1021.2005-001	7497
21005	7590	06/19/2006		
HAMILTON, BROOK, SMITH & REYNOLDS, P.C.		EXAMINER		
530 VIRGINIA ROAD		LAWRENCE JR, FRANK M		
P.O. BOX 9133		ART UNIT		PAPER NUMBER
CONCORD, MA 01742-9133		1724		

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/804,846	MA ET AL.
	Examiner Frank M. Lawrence	Art Unit 1724

8  
- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 26 May 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-42,44-51 and 54-57 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 15-35 is/are allowed.  
 6) Claim(s) 1-8,12,13,36,38-42,44,45,47,48,50,51,56 and 57 is/are rejected.  
 7) Claim(s) 9-11,14,37,46,49,54 and 55 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 19 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 40, 42 and 44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original specification does not disclose any of the limitations of claims 40, 42 and 44.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 44 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 44 is indefinite because it depends from canceled claim 43.

### ***Double Patenting***

5. Claims 1-8, 12, 13 and 36-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 27 and 31-39 of copending Application No. 10/804,847. Although the conflicting claims are not identical, they are not patentably distinct from each other because all of the limitations of the instant claims are

fully encompassed and envisioned by the co-pending claims. One having ordinary skill in the art would understand that the composite membrane is capable of functioning over a range of thicknesses and that the Group IB metal would be chosen from silver, copper, or gold based on cost, availability and effectiveness.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 36, 38, 39, 41, 45, 47, 48, 50, 51, 56 and 57 are rejected under 35 U.S.C. 102(e) as being anticipated by Mundschaus (2003/0183080 A1).

8. Mundschaus '080 teaches a hydrogen transport membrane comprising a first porous layer (12) that can be metallic, a solid deposition layer of a hydrogen permeable material (14) disposed on and in contact with the porous layer, and a catalyst layer (16B) bound to the solid layer adjacent to the porous layer. The solid layer can be a Pd or V alloy, and the porous layer can be made of a hydrogen diffusive material that is the same material as the solid layer. The layers can be formed as a tube and hydrogen is purified by passing it through the membrane (see figures, paragraphs 16-18, 24, 26, 27, 61, 65, 67, 131).

***Allowable Subject Matter***

9. Claims 15-35 are allowed.
10. Claims 9-11, 14, 37, 46, 49, 54 and 55 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. The following is an examiner's statement of reasons for allowance: Applicant has filed two rule 132 declarations to overcome the outstanding prior art rejections because the cited prior art fails to disclose an intermediate metal layer as distinguished in the declarations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

12. Applicant's arguments with respect to claims 36, 38, 39, 41, 45, 47, 48, 50, 51, 56 and 57 have been considered but are moot in view of the new ground(s) of rejection. Because the rule 132 declarations were solicited by the examiner after-final and because a newly found reference is being applied as prior art, the finality of the previous office action is withdrawn. This office action is NON-FINAL. The provisional double patenting rejection is being maintained but will be withdrawn if it becomes the only remaining issue and if the co-pending application has not been allowed. The 35 USC 112 new matter rejection of claims 40, 42 and 44 is being maintained because clear basis for the material in the claims cannot be found in the original specification.

13. With respect to the prior art cited in the previous final action, the examiner agrees that the Edlund patent fails to teach a porous layer of hydrogen permeable material in contact with a dense hydrogen-selective membrane layer, as the layers are clearly defined in the specification. With respect to the Peachy, Bossard, Drost, and Ma patents, the examiner agrees with applicant's arguments that none of the references disclose an intermediate porous metal layer as defined in the submitted declarations.

***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose composite membranes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161. The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Frank M. Lawrence  
Primary Examiner  
Art Unit 1724

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*Frank Lawrence*  
6-8-06